

## ABSTRACT OF THE DISCLOSURE

A three-dimensional image grabber allowing for the simultaneous projection of multiple phase-shifted patterns onto an object, 5 and the simultaneous acquisition of multiple images of these phase-shifted patterns is described herein. The grabber comprises a pattern projecting assembly and an image acquisition assembly. The pattern projecting assembly includes, for example, a spectral splitter or a plurality of light sources, grids and projectors for simultaneous projection of a plurality of 10 patterns under different monochromatic lights. The image acquisition assembly includes, for example, a CCD camera sensitive to the different monochromatic lights, or a plurality of CCD cameras with filters to gather lights incoming for the object simultaneously illuminated by the plurality of phase-shifted patterns. A method and a system for measuring the relief of 15 an object, using the above-mentioned process, is also disclosed.

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from Michael Brant Miles

Brant Miles